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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,931	02/07/2005	Toshimitsu Kohara	265206US0PCT	1917
22850 7590 07/24/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER CHEN, BRET P	
			ART UNIT 1762	PAPER NUMBER
			NOTIFICATION DATE 07/24/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/523,931

Applicant(s)

KOHARA ET AL.

Examiner

B. Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) 19-39,45,46,51-55,61-66,71,76 and 81-83 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18,40-44,47-50,56-60,67-70,72-75 and 77-80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claims 1-83 are pending in this application.

Election/Restrictions

Applicant's election with traverse of claims 1-18, 40-44, 47-50, 56-60, 67-70, 72-75, 77-80 in the reply filed on 4/24/07 is acknowledged. The traversal is on the ground(s) that the search would not impose a serious burden on the Office. This is not found persuasive because the search of eighty-three claims does present a serious burden on the Office.

The requirement is still deemed proper and is therefore made FINAL.

Claims 19-39, 45-46, 51-55, 61-66, 71, 76, 81-83 are withdrawn from consideration as being directed to a nonelected invention.

Specification

Applicant is reminded of the proper content of an abstract of the disclosure.

A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement. In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;

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- (2) if an article, its method of making;
- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

It is noted that the claimed invention is directed to a method and product. The examiner suggests amending the abstract to reflect same.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is directed solely to a method and product. The examiner suggests amending the title to reflect same.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-18, 40-44, 47-50, 56-60, 67-70, 72-75, 77-80 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is not clear whether the hard coating is the primary coating. The examiner will assume that it is. Clarification and appropriate amendments are requested. The same issue applies to claim 6, 8.

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It should be noted that the applicant specifically recites "forming a hard coating" and not forming a primary coating. The applicant is requested to amend the dependent claims which refer to a primary coating including claims 3-5, 7.

In addition, the term "hard" is a relative term which renders the claim indefinite. The term "hard" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The same issue applies to claims 6, 8-9, 11.

Additionally, the term "alpha-type" is considered indefinite because the addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite. The same issue applies to claims 6, 8, 14, 16-18, 40, 47, 56, 58-59, 68-70, 73-75, 78-80.

In claim 1 line 6, it is not clear whether the compound contains B, C, N, O or just one of the elements. The examiner will interpret the claims as requiring all 4 elements. The same issue applies to 6, 8-9.

In claim 2, it is not clear how one oxidizes a B, C, N, O compound and form an outermost surface to form substantially alumina. The same issue applies to claim 3, 5.

In claim 14, the phrase "(including a base material ... formed thereon)" is deemed vague and indefinite as to whether the base material has a primary coating or not. The parenthetical element should be deleted. The same issue applies to claims 40, 47, 56.

In claim 56, the term "minute" is a relative term which renders the claim indefinite. The term "minute" is not defined by the claim, the specification does not provide a standard for

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ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-18, 56-60, 67-70, 72-75, 77-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (6,156,383). Ishii discloses a method of forming a cutting tool by forming on a substrate body a cemented carbide a multilayer structure which contains an .alpha.-Al.sub.2 O.sub.3 layer and the non-oxide under layer wherein a bonding layer to both the oxide layer and the non-oxide under layer is utilized to prevent flaking or exfoliation (col.2 lines 37-53). The alumina coated tool has a plurality of refractory layers on a substrate body, wherein the plurality of refractory layers comprises: (1) a non-oxide layer of at least one of carbide, nitride and carbonitride of a metal selected from the group consisting of the Groups IVa, Va and VIa of the Periodic Table, the non-oxide layer being deposited on a surface of the substrate body; (2) a bonding layer having a face-centered-cubic structure and comprising a single-coating or a multi-

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coating of at least one of oxide, oxycarbide, oxynitride, oxycarbonitride of a metal selected from the group consisting of the Groups IVa, Va and VIa of the Periodic Table, the bonding layer being deposited on the non-oxide layer; and (3) an oxide layer being substantially α -Al₂O₃, the oxide layer being deposited on the bonding layer (col.3 lines 29-45 and Figure 2). The bonding layer can be formed by oxidizing the surface of the non-oxide coating layer of TiC, TiCN, etc. to form Ti₂O₃ (ASTM No. 10-63), Ti₃O₅ (ASTM No. 11-217) and TiO₂ (ASTM No. 21-1276) (col.2 lines 54-67). However, the reference fails to teach a compound of B, C, N, O.

It is noted that the reference clearly teaches that oxides, oxynitrides, oxycarbonitrides are interchangeable (col.3 lines 39-40). One skilled in the art knows that these elements are often combined to form coatings with distinctive properties. It would have been obvious to one skilled in the art to utilize all 4 elements in a compound with the expectation of obtaining similar results because Ishii teaches the conventionality of combining these materials.

The limitations of claims 2-18, 56-60, 67-70, 72-75, 77-80 have been addressed above.

Claims 40-44, 47-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. (6,156,383) in view of Connell et al. (4,310,614). Ishii discloses a method of forming a cutting tool by forming on a substrate body a cemented carbide a multilayer structure which contains an α -Al₂O₃ layer and the non-oxide under layer wherein a bonding layer to both the oxide layer and the non-oxide under layer is utilized to prevent flaking or exfoliation as taken above. However, the reference fails to teach an ion bombardment step.

Connell teaches the conventionality of ion bombarding a substrate prior to deposition with the expressed purposed of creating nucleation sites to increase adhesion (col.2 lines 4-27). It is noted that Ishii teaches of using a bonding layer to increase adhesion. One skilled in the art would appreciate utilizing an ion bombardment step for increasing adhesion as taught by Connell. It would have been obvious to incorporate the ion bombardment step of Connell in Ishii's process with the expectation of increasing adhesion.

The limitations of claims 41-44, 47-50 have been addressed above.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-18, 40-44, 47-50, 56-60, 67-70, 72-75, 77-80 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of

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U.S. Patent No. 7,241,492. Although the conflicting claims are not identical, they are not patentably distinct from each other because the recitation of specific materials is an obvious variation.

Claims 1-18, 40-44, 47-50, 56-60, 67-70, 72-75, 77-80 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 11/350007. Although the conflicting claims are not identical, they are not patentably distinct from each other because the elimination of a partial surface is an obvious variation.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to B. Chen whose telephone number is (571) 272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bc
7/19/07



**BRET CHEN
PRIMARY EXAMINER**